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2. The combine is the former Hermsdorf Hescho Works which included the factories at Hermsdorf, Gera, and Koenitz, as well as the porcelain factories at Kahla, Koeppelsdorf, and Spergau. In late 1951, the entire East German ceramics industry was organized into different divisions which were subordinated to three HV (Main Administrations) and two ministries as follows: ILLEGIB

The technical works at Hermsdorf, Gera, and Koenitz were placed under the VVB IKA (Association of Nationalized Enterprises, Insulators and Cables) of the Ministry of General Machine Construction, the crockery factories at Kahla and Spergau were placed under the Ministry of Light Industry, the radio parts factory at Koeppelsdorf was placed under the VVB RFT (Association of Nationalized Enterprises, Radio and Telecommunication Techniques) of the Ministry for General Machine Construction. By this organization, an attempt was made to intensify development work and to increase the production of ceramic materials at the KWH plant. In 1954, all research and development work was to be separated from the production work and to be made directly subordinate to the HV ~~Isolier~~ Kabel und Apparatebau.

3. The plant was scheduled to be enlarged considerably. No air raid protection measures were observed.

4. The 1954 plan envisaged the employment of 180 persons in development and research work, for which purpose 2 million eastmarks were required. At least, 1.4 million were expected to be allocated by the ministry. The development of the following problems was suggested by KWH:

Improvement of technical ceramics,
Intensified use of automatic equipment, ILLEGIB
Improvements in the field of ing methods,

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Increase of imports,
Procurement of substitutes for metals, especially for babbitt and white ILLEGIB
metals, special steels, and even for iron and [redacted] iron.

[redacted]

This development work was based on results achieved after 1951. One Palatzki (fnu) was in charge of dielectric matters, especially condensers, Dr. Hellermann was in charge of soft magnetic materials, and one Schinkmann (fnu) in charge of hard magnetic materials.

5. Satisfactory results were reached at the KWH in the development of dielectric materials and ferrites and in utilizing ceramic materials as substitutes for hard meta [redacted] and enlarge its outpu ILLEGIB and even to [redacted] its subsidiary plants, while other f [redacted]

6. In connection with the lack of materials in the GDR, a great deal of effort was exerted in intensifying the use of porcelain. Government subsidies were granted to urge the use of ceramics. With the aid of such subsidies, it was possible within a period of three years to reduce the price of porcelain radiator from 90 to 15 DM, the same price paid for iron radiators.

7. In the fiel of dielectric materials, the KWH had already earlier developed ceramic materials of the rutile type, commercially designated Condensa and Tempa, and they now developed a large-scale production of alkaline earth titanates of the barium strontium, calcium and magnesium types. In particular, two types of an ersilon (dielectric constant) of from 7,000 to 12,000 were produced. This work was guided by Dr. Hermann Rath and Palatzki (fnu).

8. The basic material fo [redacted] ssfarbe ILLEGIB 1053 Bayer" (white pa [redacted] r firm in Leverkusen. Since 195 [redacted] pendent of these deliveries. Since apparently no basic material was available in the GDR itself, Nobel Prize winner Dr. Bopp (fnu) conducted experiments in Bitterfeld with a view of obtaining TiO_2 (Titanium dioxide) [redacted] 25X1 [redacted]. In order to overcome the considerable difficulties involved, the first electronic microscope in the GDR was used for these experiments. The Bitterfeld product proved inadequate because it differed from the Bayer standard product by its content of the TiO_2 varieties anatase and rutile and its content of Niobium (Cb) (sic)[3] impurities. 25X1

9. Other difficulties arose with regard to the supply of magnesium oxide which was imported from Yugoslavia. Magnesium oxide contained in the Stassfurt salts proved to possess a high percentage of chloride impurities. No zirconates were added to the titanates. Zirconium oxide was added in order to control the coefficient of thermal expansion which was of great significance for the soldering of ceramic parts as, for example, in the manufacture of ceramic transmitter tubes. Zirconium oxide which was extracted from sea and sand frequently proved to be of poor quality. Small quantities of Tungsten VI oxide (WO_3) were added to the dielectric mat materials in order to slow down the crystallization process and reduce the amount of defective products. The manufacture of condenser material from

titanates was very difficult, due to the small sintering interval, the susceptibility to impurities, the difficulties in molding because of insufficient plasticity of the material, and the difficulties in controlling the baking process.

10. Raw materials and pre-sintered material were processed in ball mills lined with the same material. Each mill was charged with some 250 kg. The bricks and the balls were manufactured at the works itself. Previously boulder flint had been used. Use was also made of rubber balls. In order to obtain the dense ceramic body required for titanates of a high epsilon, the pre-sintered material was classified according to grain. Too small grain was discarded and converted into coarser grain by a new sintering process.
The milled material was then processed by pressing and drawing. For pressing, the powder was premixed with water and a small quantity of pressing oil to provide for an easy detachment from the mold. The oil used was olein; sometimes neat's-foot oil was need. The condenser tubes were manufactured by extrusion presses. For this purpose an aqueous solution of tylose ( ) was added to the premixed powder. The small tubes were pressed in a vertical position and also baked vertically. For this purpose, the upper ends of the tubes were reinforced with small rings by drossing. The tubes were then suspended in [redacted] baking process, the tubes we[redacted]cratching. Pressed sections wer[redacted]ter corundum with an intermediate layer of corundum powder to prevent sintering of the workpiece to the floor of the kiln. 25X1 ILLEGIB

11. Dr. Hellermann (fnu) was an expert in ferrites. He was engaged in experiments with the most diversified ferrite combinations. Manganese zinc ferrite, nickel zinc ferrite and especially copper manganese zinc ferrite were used for the manufacture of soft magnetic materials.

Other development work was concerned with the basic material for the production of ferrite. Permutit sludge from Nerchau proved the most satisfactory iron oxide basic material. Nickel was in short supply. The manganite required for manganese production was delivered by a firm in Arnstadt, Thuringia. The production value of hard magnetic ferrites (barium ferrite) increased to 40,000 DM in 1953 and was scheduled to reach 750,000 DM.
The utilization of Maniperm material [redacted] ILLEGIB
[redacted]udspeaker magnets [redacted] ILLEGIB
[redacted] of material. Thi[redacted]
[redacted]bicycle generators, measuring instruments, and counting magnets. While Czechoslovakia and Poland ordered large quantities of Maniperm, the USSR appeared not to be interested in this material.

12. The soft magnetic material Manifer was used not only for the production of carrier frequency cores of coil but also for variometer cores which can replace plate rotating condensers of radio receivers. Variometer cores were mainly manufactured at the Elektro-Apparatebau Koeppelsdorf.
For the manufacture of barium ferrite, permutit sludge and barium carbonate were [redacted] milled in ball mills. The resulting mixture was baked in she[redacted] temperature, since baking of the powder had proved [redacted] use[redacted]e baking process, the barium content was analysed and the BaO_6 : Fe_2O_3 ratio adjusted to requirement. Subsequently the mass was sintered.

13. Prior to the nationalization of the plant, the development of high-temperature resistant ceramics was conducted at the former Hescho works in close cooperation with the firm of MAN in Augsburg Nuernberg. Various patents have jointly been appointed to both firms. The pres The present work concerned with the development of ceramic turbine blades is based on these patents. For 1954, 100,000 DM were allocated. In 1954, the development work was conferred to VEB Porzellanfabrik Neuhaus - Schierschnitz since this plant, in [redacted] the division of labor, was charged with the development a[redacted]f high-grade refractory porcelainand ceramics. Cooperati[redacted] two plants provided that KWH would [redacted]s on orders to VEB Neuhaus - Schierschnitz, [redacted] accounted for by the KWH.
Work was done in the development of spoon-shaped turbine blades consisting of hard porcelain of the Cordierit (iolite) type. A problem of great concern was the question of thermal expansion in connection with the attachment of the blades onto the shaft, which was scheduled to be a three-point suspension. It is not known whether ceramic coating to metal blades was considered or not. No production of ceramic turbine blades was observed prior to September 1953.

14. Production of ceramic cutting laminae had been planned at Hermsdorf earlier. At the 1937 and 1938 Leipzig Fall Fairs, [redacted] laminae had been shown. They were used at red-heat temperatur[redacted] When in 1952, the procurement of cutting laminae [redacted] the Ministry of Light Industry convened a meeting with [redacted] in the chair and the following representatives attending:

Dr. Maerz (fnu), the top expert of the Immelborn works, as representative of the Widia-producing industry;
Dr. Reusch (fnu), of VEB Porzellanfabrik Neuhaus/Schierschnitz, as representative of the technical-porcelain producing industry, the manager of the Dresden - Reick porcelain factory, as representative of the grinding-wheel industry:

Dr. Alfred Richter as representative of the Dresden School of Technology and

Herr Kammel (fnu), manager of KWH, as representative of the ceramics industry.

The Referent of the Ministry announced that, in view of the fact that the increa[redacted] cutting la[redacted] formed hea[redacted] outline further research work [redacted], presumably in 1950, the Soviets had started to work with ceramic cutting laminae operating at very high temperatures. It was found that the highest efficacy of such laminae was reached at high temperatures without any damage occurring to the laminae. New experiments with higher cutting speed disclosed that ceramic cutting laminae developed their highest efficacy at temperatures above 550°C. Further experiments showed that still higher speeds and greater efficacy can be reached when materials of the sintering ruby type were used instead of hard porcelain. Length and depth of the chips had to be kept small. The aluminum oxide used for the cutting laminae had to be heated to the highest possible kiln temperature of 1,600° C. These temperatures were reached only at the VEB Porzellanfabrik Neuhaus Schierschnitz which was equipped with watergas-heated kilns.

Research work at Schierschnitz was guided by Dr. Reusch. The aim was to develop mass production of standard ceramic laminae to be sold at a very low price. These laminae were glued with a plastic material called Araldite onto steel shafts. The turning speed is very high and chips are removed in white-hot condition. In view of the low price of the laminae there is no need to re-sharpen them. By September 1953, ceramic cutting laminae were produced in considerable quantities to be used for the machining of babbitt and white metals, and soft cast iron. The production of cutting laminae for hard casts was to be started.

15. Silver coating of ceramic bodi[redacted]ver paste and baking at temperatures from 400 to 60[redacted]his layer by electrolytic coating with silver or copper, proved very useful in the manufacture of transmitter goniometer coils and variometers, and in the manufacture of gas-tight ceramic tubes.

16. In the field of high frequency, insulators of 150, 200, and 400 kV were manufactured from ceramic materials. Numerous experiments were conducted for the development of 400 kV insulators. Types other than the one-piece rod-type suspension insulator were not developed, however, Insulators were mainly delivered to the USSR. Leningrad, the Ural Mts, and the environs of Kiev and Minsk were mentioned as [redacted] destinations.

The Soviet officer Sterm (fnu) who directed dismantling work at an earlier period and later frequently visited Hermsdorf to supervise the deliveries, has published several papers on high frequency insulators.

17. Much attention was given in Hermsdorf to the production of porcelain for the chemical industry. Large-sized containers of up to 700 liters, boilers, absorption and reaction towers, vertical pumps for pipelines and heat exchangers were manufactured. A washing tower manufactured for the phenol washing plant of Brabag a[redacted]gh. The application of surface grinding add[redacted] such large-sized containers since with this method jointing ag[redacted]necessary. The surface grinding was done with polis[redacted]basic material for porcelain for the chemical i[redacted] oxide (Al_2O_3). The baking process produced a cordierite like substance of a low coefficient of thermal expansion which makes the containers resistant to rapid temperature changes.
The major portion of the production was delivered to the USSR and to the satellite countries. Pipelines with surface grinding were ex[redacted] their [redacted] destination and their us[redacted]

18. Porcelain pipes were [redacted] foodstuff industry, for example, in dairies [redacted]rface grinding are easily kept clean. In [redacted] kept sterile by daily cleaning with hot wa[redacted]atment, without the need of disassembling [redacted]
Porcelain proved most [redacted] pumping systems because porcelain pipes are less subject to mechanical corrosion than pipes made of other materials.
Porcelain also proved useful in the manufacture of [redacted]in bearings, roller bearings, pivot supports and balance prisms.
Trial experiments for the used of porcelain in ball bearings ended in failure.

22. According to a ministerial decree, in 1954 all research and development work was to be made subordinate to the "VEB Konstruktion und Entwicklung der IKA" with its center in Leipzig at VEB Leuchtenbau (the former Koerting & Mathiessen firm). Engineer Palm (fnu) was to be manager of this enterprise. No transfer of the research and development work from the KWH area was planned, however, nor were any personnel changes.

23. [redacted] KWH in 1953 was 4,350 employees and workmen. Of [redacted]0 were employed at the Gera factory, 250 at the Koenitz subsidiary plant.
A labor manager was in charge of all personnel matters.
Professional training at the KWH was conducted at:

A school for additional training equipped with workshops. The courses were attended regularly by some 200 trainees, with satisfactory results.

A factory-owned school (Volks-Hochschule) attended by 70 to 100 participants who who acquired there basic knowledge for eventual university studies. Lectures were given by experts and college teachers.

Medical aid was given at the KWH by 16 male and female physicians, ten or eleven of them received a fixed salary, some of them were specialists. The plant had its own hospital in Hermsdorf.

24. Great significance was attributed [redacted] institutions:

a. The "Organization des Inner- und Ueberbetrieblichen Vorschlagswesens" (an "Efficiency Awards Committee"), set up between mid-1951 and early 1952, designed to accept and remunerate useful suggestions made by members of the work force for an improvement of the factory operations. The factory workers were eager to cooperate and considerable improvement in the productive sector was reached.

b. The "Inner- und Ueberbetrieblicher Erfahrungsaustausch" (an exchange of-views organization), which collected and exchanged experiences made all over the Soviet orbit including China. By this service it was possible to reduce the expenditures for research work, and all progress reached was immediately brought to the knowledge of those interested in the matter. This procedure proved particularly useful in the development of the ceramic cutting laminae.

25. Numerous Soviet and satellite engineers visited the KWH in connec[redacted] with the activities of the "Rat der gegenseitigen Wirtschaftshil[redacted] for Mutual Economic Aid). It was obvious that the visitors were [redacted] reconnoitering the methods used at the factory than disclosing any for their own methods. It were mainly the Czech engineers who were most inquisitive. They used tricky questionnaires and it was extremely diff[redacted] to disclose their secret production meth[redacted] visit the plant.

26. In 1953, the management of KWH was ordered by the ministry to prepare and deliver to the USSR a detailed plan for the set-up of a new ceramic plant.

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Layout of the Hermsdorf Ceramic Works.

Legend:

1 - Manufacture of porcelain for chemical and technical purposes

2 - Annex erected in 1948 equipped with a modern gas-fired chamber furnace with 12 chambers.

3 - Annex "Ferrite" erected in 1953

4 - Gas plant erected in 1948 equipped with two rotary-grate generators, 1.8 meters in diameter.

5 - Temporary buildings set up during the war on the location of a destroyed building, used for the processing of ferrites and for silver-coating operations

6 - Craftsmen shop, locksmith ship, machine s[redacted] apprenti[redacted] This building was erected on the spot of a[redacted]

7 - Old building. In 1945, 18 circular furnaces [redacted]ed here.

8 - Assembly of high voltage porcelain and porcelain for chemical and technical purposes

9 - [redacted] erected in 1948, equipped with two

Organizational setup of the Hermsdorf Ceramic Works (KWH) in late September 1953:

A.

KWH Management

Chief manager	Fritz Leunert, a trained shipping agent, former BGL leader. An energetic person and a loyal Communist.
Deputy manager and technical manager	Kammel (fnu), in office until 20 September 1953.
	First replaced by Krahl (fnu) [redacted] 25X1 25X1 [redacted]
Manager of labor	Kraft (fnu), an expert in the techniques, intelligent and versatile, SED member.
Cultural manager	Sperhake (fnu), former mayor at Hermsdorf, an administrative official, SED member.
Leader of the factory trade union local (BGL)	Rabenow (fnu), former professional soldier.
Personnel chief	Pracksiek, for[redacted]
Commercial manager	Fleischmann (f[redacted] business man.
Head of the checking department of finished products	[redacted]ineer Werler (fnu), a ceramics [redacted]tically undetermined.

Management of the Gera Works No II

General manager	Lemke (fnu), a former carpenter
Technical manager	Goetz (fnu), in office until late 1953
Production manager	Stojan (fnu)

Management of the Koenitz Subsidiary Plant

Technical manager	Trinks (fnu)

~~Subordinate to the technical manager were:~~

B.

Subordinate to the Technical Manager Were:

At the production department

General manager	engineer Weidauer (fnu)
Main dispatcher	technician Froehlich (fnu). This assignment was newly set up in early 1952 and proved very useful.
Production leaders:	
Chief mechanic	[redacted]neer Watzke (fnu), in cooperation [redacted]shop leaders
Preparational measures for the operations	Dr. Balke in cooperation with the departments procuring dies, molds and supervising the thermal installation.

At the development department

~~Chief engineer~~ Chief designer	engineer Krahl (fnu) called "chief ceramics expert". A loyal SED member, [redacted] 25X1 [redacted]
Chief departmental manager	[redacted]gineer Palatzki (fnu), head of the [redacted]mical research, head of the ceramic workshop and of the ceramic-chemical [redacted] 25X1 H[redacted]nkmann (fnu), who was preparing his thesis at the School of Mines at Freiberg/Saxony.

At the research departments

Optical research	[redacted]ngineer Dallendoerfer (fnu), a
High frequency research	engineer Becker (fnu), who also headed the high frequency laboratory. He was assisted by: Dr. Hellermann (fnu), a physicist, former lecturer at Jena University Dr. Falks (fnu) engineer Montvill (fnu) engineer Marr (fnu) engineer Koster (fnu)
High frequency and low frequency research	[redacted]nz (fnu), who was assisted by [redacted]ineer O.H. Schmidt, head of the [redacted]g grounds and the mechanical laboratory. His co-workers were: furnace technician Garbe (fnu)

ceramics engineer Schoedel (fnu)
ceramics engineer Pohl (fnu)
ceramics engineer Frau Schroeder (fnu)

He was assisted by Katerkraft (fnu).

[redacted] 25X1

[redacted] 25X1

[redacted] 25X1